シヤント感染の治療 : 難治性脳室炎に対する脳室ドレナージの脳室胃吻合術への変換

AUTHOR(S):

森, 惟明; 半田, 肇; 室家, 大久

Arch. Jap. Chir., 45 (5), 398～400, Sept., 1976

症　　例

シャント感染の治療：難治性脳室炎に対する脳室ドレナージの脳室胃吻合術への変換

京都大学医学部脳神経外科学教室（主任：半田肇教授）

森　　惟　明，　半　田　　肇

京都大学医学部外科学教室第2講席（主任：日笠頼則教授）

室　　家　　大　　久

〔原稿受付：昭和51年7月20日〕

Treatment of Shunt Infection : Conversion of External Ventricular Drainage to Gastric Shunt for Persistent Ventriculitis

by

KOREAKI MORI and HAJIME HANDA

Department of Neurosurgery, Kyoto University Medical School
(Director : Prof. Dr. HAJIME HANDA)

HIROHISA MUROYA

The 2nd Surgical Department, Kyoto University Medical School
(Director : Prof. Dr. YORINORI HIKASA)

Infection is the major complication of shunts in cases of hydrocephalus, and is the most common cause for shunt failure. In an effort to eradicate infection and control intracranial pressure, we removed the shunt and instituted an external ventricular drainage (EVD). With appropriate antibiotic therapy, this is perhaps the treatment of choice. Infections usually cleared within about one month, and EVD was then placed in the peritoneal cavity in most cases[2]. The longer the EVD was maintained, the greater was the contamination. The shunt could not be internalized until infection had cleared. It was a problem

Key Words : external ventricular drainage, hydrocephalus, infected shunt, ventriculitis, ventriculogastric shunt.

Present address : Department of Neurosurgery, Kyoto University Medical School, Sakyo-ku, Kyoto, Japan. 〒 606

to maintain EVD for a long time since morbidity and mortality increased.

Recently we successfully inserted EVD for long periods in order to control persistent ventriculitis in the stomach, even though the infection was not completely eradicated.

Case report

An hydrocephalic infant male was born by cesarean section on July 13, 1975. He was admitted to our department on July 18, 1975. After neuroradiologic studies, a ventriculo-peritoneal shunt was inserted. The postoperative course was uneventful, and he was discharged on August 4, 1975. However, progressive enlargement of the head was noticed about one month after discharge. The shunt was revised on October 17, 1975. Thereafter, the shunt was removed and EVD was substituded because of a wound infection which occurred on November 18, 1975. Cultures of the cerebrospinal fluid were negative. After the wound infection cleared, the ventriculo-peritoneal shunt was reimplanted on December 3, 1975. The shunt had been functioning well, but the patient started to have intermittent fever up to 39.0°C, and generalized convulsive seizures beginning on December 15, 1975. The shunt became obstructed and ventriculitis was suspected clinically, so the shunt was removed and EVD was again substituted on January 7, 1976. Cultures of the cerebrospinal fluid revealed comamonas or alcaligenes. Despite systemic and intraventricular antibiotic treatment and two elective revisions of EVD, the persistent ventriculitis was not completely cleared. We decided to convert the EVD to a ventriculo-gastric shunt. On March 30, 1976, the EVD was removed and a ventriculo-gastric shunt was implanted. Raimondi's spring catheter was inserted into the stomach through a small gastrostomy wound in the anterior wall. After fixation of the catheter to the gastric wall by purse-string sutures, the gastrostomy wound was fixed to the abdominal wall. Postoperatively, a naso-gastric drainage tube was inserted for two days. The postoperative course was uneventful except for transient abdominal distension, and the patient was discharged on April 12, 1976. The patient had been followed at the out-patient clinic after discharge. However, he unexpectedly expired due to pneumonia on May 27, 1976. The ventriculo-gastric shunt had been functioning well until death.

Discussion

There is no entirely satisfactory way to deal with infected shunts. Temporal control of intracranial pressure is adequate by means of EVD[4]. The significant advantages of EVD are that it allows for both a precise means of controlling intraventricular presssure and a removal of intraventricular pyogenic exudate from the ventricular system. EVD is usually maintained until infections clear. After three consecutive 72-hour negative cultures of the cerebrospinal fluid, antibiotics were stopped for 24 hours. If cultures still remained negative during that time, the EVD was internalized[2]. EVD, if left in for more than 2 weeks, was revised electively. During treatment by EVD, all procedures should be performed under strict aseptic conditions. EVD is not a completely closed system. Therefore, in some cases contamination may occur by secondary invaders due to superinfection or hospital-acquired

trasfer of infection. EVD has many drawbacks. Secondary infections may occur, and continuous loss of protein and electrolytes often result. There also is a need to keep patients horizontal or to have qualified personnel with them, and a need for extensive isolation facilities in order to reduce the risk of contaminating personnel and other patients.

Most operations for the treatment of hydrocephalus have long been abandoned, and the most effective procedures have been the insertion of ventriculo-peritoneal shunts. The ventriculo-gastric shunt[1] is one method for deviating the cerebrospinal fluid. The acidity of the stommach content is well known, and a low pH provides the organisms with unfavourable environment.

It is conceivable that the organisms might be killed by lowering the pH in the stomach by feeding Coca-Cola[3]. For the treatment ef infected shunts with persistent ventriculitis, it might be reasonable to switch the chronic EVD to a ventriculo-gastric shunt.

References

1) Alther, E.: Das Magenventil. Eine neue Operationsmethode zur Behandlung des Kindlichen Hydrocephalus. Schweiz. med. Wschr., **95**: 234-236. 1965.
2) Mori, K., Raimondi, A. J. An analysis of external ventricular drainage as a treatment for infected shunts. Child's Brain, **1**: 243-250. 1975.
3) Selker, R.G.: Personal communication. 1973.
4) White, R. J., Dakters, G. J., Yashon, D., et al.: Temporary control of cerebrospinal fluid volume and pressure by means of an externalized valve-drainage system. J. Neurosurg., **30**: 264-269. 1969.

和文抄録

シャント感染の治療：難治性脳室炎に対する脳室ドレナージの脳室胃吻合術への変換

京都大学医学部脳神経外科学教室（主任：半田肇教授）

森　惟明，半田　肇

京都大学医学部外科学教室第2講座（主任：日笠頼則教授）

室家大久

乳児水頭症で，シャント感染のために持続脳室ドレナージを行ったが，脳室炎が難治性で容易に脳室腹腔吻合術に切り換えられなかった症例で，長期に亘る脳室ドレナージを途中で脳室胃吻合術に変換することに成功した一例を報告する。脳室胃吻合術は，シャント感染に対して，脳室ドレナージに代わる治療法となりうるかもしれない。